2013
IOWA AUGUST
ROADSIDE SURVEY

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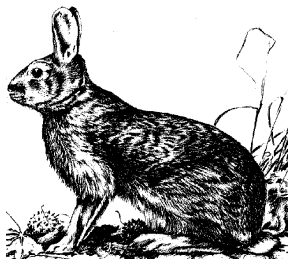

Iowa Department of Natural Resources
Chuck Gipp, Director
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2013 IOWA UPLAND WILDLIFE POPULATIONS

This report is a summary of the 2013 Iowa August roadside survey. The survey is conducted each year by Iowa DNR Enforcement and Wildlife Bureau personnel throughout the state of Iowa during the first half of August. Individuals involved in this survey should be credited for their efforts to collect these data during the early-morning hours. This survey is partially funded by the Pittman-Robertson Act, Federal Aid in Wildlife Restoration Program, Project Number W-115-R.

The August roadside survey generates data from approximately 215, 30-mile routes on ring-necked pheasants, bobwhite quail, gray partridge, cottontail rabbits, and white-tailed jackrabbits. Counts conducted on cool mornings when the sun is shining, with heavy dew, and no wind yield the most consistent results. Comparisons between 2012 and 2013 are based on routes that are directly comparable between years (routes with no alterations and routes started with good dew). Data are summarized by region (Figure 6) while long-term trends are based on all routes run. Two factors determine the abundance and distribution of upland game populations in Iowa - **weather** and **habitat.**

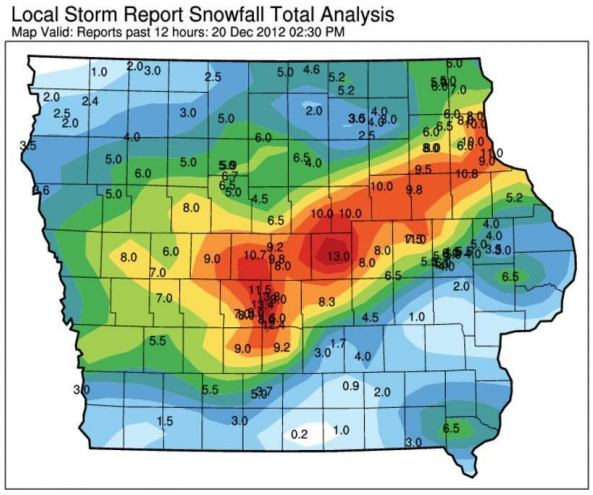


Figure 1. Snowfall December 2012 Blizzard.

2012-13 IOWA WEATHER SUMMARY

Iowa pheasant numbers increase with mild winters (less than 19 inches snowfall) and warm, dry springs (less than 6 inches rainfall) and decline with snowy winters (30+ inches snowfall) and cold, wet springs (8+ inches rainfall). Iowa experienced 5 consecutive severe winters with 30+ inches of snow from 2006-07 to 2010-11. In the 50 years of standardized roadside counts, Iowa has never seen 5 consecutive winters of this severity (Figure 4).

Iowa finally saw a break in this winter weather pattern in 2012 with only 17 inches of snowfall. Unfortunately, NOAA reported above normal snowfall for every region except the NW region during winter 2013 (Table 1). An early blizzard in December with wet heavy snow hit the Central and part of the EC region and likely lowered overwinter hen survival (Figure 1). The snow was so wet and heavy it collapsed all herbaceous cover for the duration of the winter.

Table 1. Iowa 2012-13 weather summary.

	Survey Regions									
Weather Variables	NW	NC	NE	WC	C	EC	SW	SC	SE	STATE
Winter Weather*										
Total Snowfall (inch)	25	33	43	30	37	30	24	33	27	**31.3**
*Departure***	*-1.9*	*4.3*	*14.0*	*2.6*	*12.2*	*5.5*	*2.5*	*11.3*	*3.9*	*6.0*
Spring Weather										
Total Rainfall (inch)	13.2	16.6	16.3	13.7	17.7	16.1	13.0	15.4	16.2	**15.4**
Departure	*7.2*	*9.7*	*9.1*	*6.7*	*10.4*	*8.8*	*5.5*	*7.8*	*8.7*	*8.2*
Mean Temperature (F)	49	49	51	50	51	54	52	53	55	**51.3**
Departure	*-5.1*	*-5.0*	*-2.7*	*-5.8*	*-3.6*	*-1.8*	*-4.8*	*-4.2*	*-2.2*	*-4.1*

* Winter weather period (1Dec.-31Mar.) and spring period (1April-31May).

** Departures calculated using thirty year NOAA average from 1961-1990.

The spring of 2013 was a terrible spring for ground nesting birds. Rainfall during the 2013 nesting season was the highest in state history (141 yrs of record) dating back to 1872. Over 15 inches of rain fell in April and May, more than twice the normal rainfall of 7.1 inches (Table 1). Temperatures were also significantly cooler than normal. According to the state climatologist, the spring of 2013 was the 5th coolest in state history. The only colder springs occurred in 1960, 1875, 1882, and 1888. Pheasants did not become established in Iowa until around 1920, **so the spring of 2013 was the wettest and coldest ever experienced by the population**. With the exception of C and EC regions, overwinter survival was likely normal, while the wet, cold spring led to poor reproduction by all species except cottontails.

UPLAND HABITAT TRENDS IN IOWA

Figure 2. Trends in Iowa habitat and total habitat loss from 1990 to 2010, data from USDA.

Year	Hay Acres	Small Grains Acres	CRP Acres	Total All Habitat Acres
1990	2,000,000	675,000	1,951,061	4,626,061
1995	1,700,000	260,000	2,199,360	4,159,360
2000	1,700,000	198,000	1,598,662	3,496,662
2005	1,600,000	140,000	1,917,574	3,657,574
2010	1,200,000	80,000	1,672,601	2,952,601
		Total Acres Habitat Lost		1,673,460
		Total Square Miles Habitat Lost		2,615

Changes in habitat are more gradual and the influence of habitat changes on upland populations are only evident after looking at several years of surveys. Information from USDA shows that between 1990 and 2010 Iowa has lost 2,615 mi^2 of potential pheasant habitat (Figure 2). This habitat was a mix of small grains, hay land, and Conservation Reserve Program (CRP) acres. To put this loss in perspective, 2,615 mi^2 is a strip of habitat **9 miles wide** that would stretch from Omaha to Davenport! CRP has become critical for Iowa pheasant populations with the lost of small grains and hay lands to corn and soybean production.

High ethanol demand and the drought of 2012 have put more pressure on Iowa CRP, as high commodity prices have encouraged farming of marginal lands. CRP contracts on some 185,926 ac (291 mi^2) expire this fall; 141,193 acres of general and 44,733 acres of continuous CRP. This summer, USDA re-enrolled 47,400 acres during the 45th general CRP signup, so the loss of pheasant habitat continues. On a positive note, Iowa was awarded a new continuous CRP practice called Iowa Pheasant Recovery SAFE (CP38). This new practice is designed to help recover pheasant populations on farms that enroll in the practice. There is over 46,000 acres currently available www.iowadnr.gov/habitat .

SURVEY WEATHER CONDITIONS

The August Roadside Survey yields the most consistent results when surveys are completed on mornings with heavy dew, no wind, and sunny skies. Research at Iowa State University in the 1950's showed the number of pheasants counted on mornings with medium dew averaged 43% less than when the route was run on a morning with heavy dew. Staff reported 86% of routes were started with heavy dew in 2013, compared to 73% in 2012, although conditions in 2013 were more overcast than last year. Staff in the C and SW regions had fewer favorable dew mornings than other regions.

For accurate pheasant counts the roadside survey requires heavy dew mornings. The severe drought of 2012 likely led to many pheasants not being counted that were actually present. The comparison of the 2013 survey under good conditions to the 2012 survey under bad conditions is challenging. Statistically comparing 2013 survey to 2012 survey indicates the statewide pheasant population is unchanged. However, the 2012 roadside survey indicated pheasant numbers were 16% higher than 2011, but hunter harvest information indicates the pheasant numbers were perhaps 41% higher. If pheasant numbers were actually 41% higher in 2012 rather than 16%, then populations in 2013 are significantly lower rather than unchanged as the survey suggests.

RING-NECKED PHEASANT

Statewide: This year the statewide index is 6.5 birds/route, a -19% decrease from the 2012 estimate. This year's count matches the record low set in 2011 (Table 3). There was a lot of variability in the counts across the regions this year with no statistically significant trends in any survey region for total pheasants (Table 2). The overall statewide decline in number was expected given the record cold and wet spring Iowa experienced (Table 1). A good portion of the variability in routes this year is likely related to the poor survey conditions from 2012. For example counts in NE region increased from 1.5 to 3 birds per route. Perhaps they did not increase at all, because staff simply counted the birds that were there this year with the better survey conditions, whereas they did not count them last year during the drought.

Iowa research indicates overwinter hen survival, brood survival, and nest success are the major factors influencing annual changes in pheasant numbers. Statewide, the total hens counted on routes this year were similar to (-12%) last year, suggesting average overwinter survival (Table 2 – statewide numbers). Statewide data on chicks (measure of nest success) showed a significant decline (-26%), while age ratio's (chicks per adult hen – measure of overall hen success) showed -18% compared to 2012. Both are indicative of a poor nesting season, which was expected given the record rainfall and cold temperatures during the nesting season (Table 2).

Based on this year's statewide index of 6.5 birds/route, Iowa pheasant hunters should harvest approximately 100,000-150,000 roosters this fall (Figure 4). Iowa currently has 1.6 M acres of CRP and this level of habitat should support a 600,000-800,000 rooster harvest. Iowa needs to put 4 to 5 good winters and springs back to back to recover from the weather pattern experienced from 2007 thru 2011 (Figure 4). It will be very hard to recover Iowa pheasant numbers if significant habitat losses continue in Iowa.

Northern Regions: Routes in the NW and NC regions showed declines in bird numbers, while the NE showed an increase in 2013 (Table 2, Figure 6). Looking at data in Table 2, overall hen success was poor with the trend in all three regions lower than last year, indicative of the poor weather during the nesting season. Changes in adult numbers rather than chick numbers led to the increasing trend in the NE region in total pheasants – suggesting perhaps this year's survey just did a better job counting birds than during the drought of last year. Across the northern third of Iowa the NW and NC regions have some of the better bird densities in the state in 2013. However, numbers in the NE remain the lowest in the state. Parts of NW and NC Iowa should offer fair pheasant hunting, particularly around good habitat on public lands (Figure 7). Better counts came from Cerro Gordo, Clay, Dickinson, Hancock, Palo Alto, Osceola, and Winnebago counties.

Central Regions: Counts in the WC region suggest better survey conditions and/or good overwinter survival because of improved adult numbers. Chick, brood size, and age ratio data all suggest fair nest success and chick recruitment. The Central and EC regions had fewer adult hens and smaller brood sizes and age ratios compared to 2012, suggesting some overwinter mortality and a very poor nesting effort (Table 2). The December 2012 blizzard likely lowered overwinter hen survival in these regions and the wet spring only added insult to injury. Hunters in the region should focus their efforts around core winter cover which also has good nesting cover associated with it, public land and well managed CRP lands (Figure 7).

Southern Regions: The southern regions generally showed relatively stable pheasant numbers compared to 2012 (Table 2, Figure 6). Data on chicks, chicks/brood, and young per hen (age ratio) in the SW and SE regions suggest nesting and chick recruitment were poor compared to 2012, but perhaps similar to 2012 in the SC region. Overwinter survival (#'s of adult cocks and hens) generally increased across the region, suggesting little overwinter loses. Similar to the central regions hunters should focus their efforts around core winter cover which also has good nesting cover associated with it.

While this region of Iowa has an abundance of habitat in the form of CRP, most is located on private land and has been enrolled in the program for 20+yrs with little active management reducing its value for pheasants and quail. However, lack of management is only part of the problem in this region. Nesting season weather patterns also have shifted in the region. Table 1b shows the amount of April/May rainfall has increased significantly during the last 20+ years over the NOAA computed normal (1961-90) value. Since pheasant reproduce best during dry – warm springs this trend toward wetter conditions is likely reducing the reproductive potential of the population. Good counts in all 3 regions in the 1980's reflect the drier weather pattern experienced during that decade and lower counts with wetter weather prevail in the 1990's through 2013 (Table 3).

Table 1b. Mean nesting season (Apr/May) rainfall (inches) by decade in southern Iowa roadside survey regions. Over the last half century pheasant counts have always declined with April/May rainfall greater than 8". Since 1992 April/May rainfall has been mostly over 8" every year across southern Iowa.

	SW	SC	SE
Normal (1960-90)	*7.46*	*7.63*	*7.53*
1940-49	7.18	7.18	7.66
1950-59	7.05	7.21	7.03
1960-69	7.34	7.73	7.54
1970-79	7.69	8.15	8.40
1980-89	7.40	7.00	6.82
1990-99	9.09	9.61	9.14
2000-09	9.15	8.57	8.39
2010-13	9.28	10.96	11.12

BOBWHITE QUAIL

Statewide bobwhite quail numbers were unchanged from 2012 counts (Table 2, Figure 6). Landowners and staff reported lots of calling males this spring suggesting good winter survival. This year's report seems to support that notion (Table 1). This year's index is -30% below the 10 year average and -71% below the long term average (Table 3, Figure 5). Changing land-use, mainly intensified agriculture, loss of small grain agriculture, and loss of shrubby/brushy habitat are the leading factors in Iowa's long-term quail decline. This year's count is similar to numbers seen in 2008 and 2001 (Table 3). Better quail numbers were reported in SC and SE Iowa where DNR staff have focused management on providing quail habitat (Figure 7). Iowa has 10,000+ acres of CP33 remaining; a CRP practice that provides needed quail habitat around crop fields in southern Iowa. Visit the DNR's website for more information on this practice www.iowadnr.gov/habitat .

GRAY PARTRIDGE

The 2013 gray partridge count was 0.9 birds per 30 miles, a decline of -38% compared to the 2012 count, but the change was not significant, indicating variability across routes statewide. (Table 2, Figure 5). This year's statewide estimate is -42% below the 10-year mean and -77% below the long-mean (Table 3, Figure 5). Gray partridge numbers have not been this low since the early 1960's. Gray partridge prefer the wide open agricultural lands of the northern two-thirds of the state. The NC and NE regions reported the best partridge numbers in 2013 (Figure 7). Typically partridge recruitment is highest in Iowa when spring/summer precipitation is well below normal. With record rainfall and cold temperatures this spring the decline in the population was expected.

COTTONTAIL RABBIT

Staff reported an average of 5.2 rabbits per route in 2013, a significant increase (+144%) from the 2012 estimate (Table 2, Figure 5). This year's count is 6% above the 10-year mean and -13% below the long-term average (Table 3). Regionally, rabbit numbers increased significantly in all regions except the NW and SW regions, but even in these regions the cottontail trend was up. Cottontails tend to reproduce well in years with abundant spring and summer rains. Cottontail hunters can expect good hunting in Appanoose, Davis, Decatur, Monroe, Wayne, and Van Buren counties (Figure 6 and 7).

Table 2. Mean numbers of wildlife observed per 30-mile route on the August roadside survey in 2012 and 2013. Only routes run under heavy to moderate dew conditions are used for statistical comparisons.

		RINGNECKED PHEASANTS								BOBWHITE QUAIL		GRAY PARTRIDGE		RABBITS	
REGION	n	TOTAL PHEASANT	COCKS	HENS W/O BROODS	HENS W/ BROODS	HENS	CHICKS	CHICKS/ BROODS	AGE RATIO	TOTAL BIRDS	COVEYS	TOTAL BIRDS	COVEYS	EASTERN COTTONTAIL	WHITETAILED JACKRABBIT
Northwest	24														
2013		12.33	1.75	0.92	1.29	2.75	8.38	4.32	3.14			1.08	0.08	2.25	
2012		16.18	1.77	0.95	2.36	3.82	11.09	4.88	3.66			2.50	0.18	2.05	
% CHG		-24%	-1%	-3%	**-45%**	-28%	-24%	-11%	-14%			-57%	-56%	10%	
Northcentral	26														
2013		8.96	0.88	0.50	1.23	1.92	6.35	4.02	2.78			2.00	0.15	2.96	0
2012		11.12	0.77	0.38	1.35	2.12	8.62	5.24	4.15			2.96	0.31	0.96	0.04
% CHG		-19%	14%	32%	-9%	-9%	-26%	-23%	-33%			-32%	-52%	**208%**	
Northeast	19														
2013		2.68	0.53	0.16	0.11	0.63	1.89	3.43	2.56	0.05		1.74	0.16	3.42	
2012		1.35	0.18	0.00	0.18	0.29	1.00	3.40	3.40	0.00		1.41	0.18	2.06	
% CHG		99%	194%		-39%	**117%**	89%	1%	-25%			23%	-11%	66%	
West Central	22														
2013		5.41	0.50	0.32	0.68	1.18	3.91	4.39	3.48	0.05		1.14	0.09	4.14	
2012		3.50	0.39	0.11	0.39	0.78	2.61	3.45	2.65	0.00		0.83	0.06	1.44	
% CHG		55%	28%	191%	74%	51%	50%	27%	31%			37%		**188%**	
Central	28														
2013		7.86	0.93	0.25	1.00	1.54	5.68	4.73	4.11	0.00		0.71	0.04	4.18	0.07
2012		14.04	0.80	0.24	1.64	2.60	11.36	5.07	4.34	0.08		3.56	0.36	2.04	0.00
% CHG		-44%	16%	4%	**-39%**	**-41%**	**-50%**	-7%	-5%			**-80%**	**-89%**	**105%**	
Eastcentral	18														
2013		3.78	0.44	0.06	0.39	0.72	2.89	4.63	3.94	0.11		0.94	0.06	7.11	
2012		5.39	0.11	0.00	0.28	0.89	5.00	5.91	5.91	0.00		0.06	0.00	1.78	
% CHG		-30%	300%		39%	-19%	-42%	-22%	-33%					**299%**	
Southwest	16														
2013		2.81	0.75	0.44	0.38	0.88	1.25	3.00	2.07	0.88	0.00	0.00		2.81	
2012		4.33	0.40	0.13	0.60	0.93	3.20	3.63	3.06	1.87	0.13	0.07		2.00	
% CHG		-35%	88%	238%	-37%	-5%	-61%	**-17%**	**-32%**	-53%	-100%			41%	
Southcentral	22														
2013		4.91	0.82	0.23	0.45	0.95	3.41	4.69	3.33	1.91	0.14			11.45	
2012		4.14	0.36	0.14	0.41	0.86	3.23	4.79	3.38	1.91	0.18			3.36	
% CHG		19%	**128%**	64%	10%	10%	6%	-2%	-1%	0%	-22%			**241%**	
Southeast	22														
2013		6.27	0.95	0.55	0.68	1.45	4.09	4.83	2.81	0.82	0.05			8.41	
2012		6.19	0.71	0.24	0.57	1.10	4.67	5.71	4.01	0.14	0.05			3.38	
% CHG		1%	34%	129%	19%	32%	-12%	-15%	-30%	**486%**	0%			**149%**	
Statewide	197														
2013		6.49	0.87	0.39	0.74	1.41	4.49	4.34	3.20	0.40	0.02	0.88	0.07	5.15	0.01
2012		7.96	0.65	0.27	0.94	1.60	6.10	4.84	3.88	0.41	0.04	1.42	0.14	2.11	0.01
% CHG		-18%	**34%**	**44%**	-21%	-12%	**-26%**	-10%	-18%	-2%	-50%	-38%	-50%	**144%**	0%

BOLD numbers indicate a mathematically significant change from the previous year ($P < 0.10$, Wilcoxen Signed Rank Test).

Table 3. Historical upland wildlife numbers from the August Roadside Survey. Numbers represent the average number of animals counted on 30-mile routes[a].

	PHEASANTS										BOBWHITE QUAIL	GRAY PARTRIDGE	EASTERN COTTONTAIL	WHITETAILED JACKRABBIT
YEAR[b]	NW	NC	NE	WC	C	EC	SW	SC	SE	STATE	STATEWIDE	STATEWIDE	STATEWIDE	STATEWIDE
1962	84.7	95.5	85.3	85.0	74.6	32.3	44.4		12.8	65.9	0.62	1.13	5.2	0.45
1963		200.4	40.8		60.3		200.4		19.8	52.6	1.12	0.92	7.9	0.41
1964	99.9	138.0		101.6	54.4	53.9	92.6	26.3	18.3	79.4	1.39	0.85	7.9	0.53
1965	46.0	67.5	47.8	64.7	36.2	43.9	97.6	44.6	22.8	49.9	2.21	0.48	8.1	0.35
1966	43.5	75.3	57.5	58.4	49.3	63.9	144.1	40.7	17.1	56.6	2.29	1.30	10.3	0.35
1967	31.0	56.8	57.2	42.4	53.2	58.6	108.3	38.8	21.1	49.1	2.10	0.66	7.5	0.60
1968	38.0	56.0	56.6	53.5	52.2	64.3	127.4	38.7	19.7	52.7	2.06	0.68	7.4	0.28
1969	18.8	44.7	62.5	42.2	57.6	57.2	77.9	44.2	25.2	45.5	2.60	0.38	6.3	0.31
1970	39.2	53.0	59.6	56.1	87.8	91.7	129.1	63.8	40.5	66.2	2.95	1.66	4.4	0.15
1971	34.6	45.2	49.0	66.2	82.6	104.3	101.6	49.7	48.4	62.0	2.64	1.44	5.4	0.35
1972	37.9	44.6	61.0	61.4	73.2	88.6	112.3	54.3	25.8	59.6	2.26	1.92	5.5	0.30
1973	47.0	56.9	65.4	66.3	88.7	103.5	72.4	54.3	30.2	65.8	2.54	1.87	5.8	0.20
1974	46.6	53.2	52.5	60.5	40.0	55.9	90.1	49.6	16.8	49.7	2.11	1.82	4.1	0.07
1975	10.5	28.7	52.3	34.3	43.2	64.3	51.0	45.4	27.4	38.8	1.98	1.98	3.2	0.11
1976	14.8	42.2	68.1	44.8	54.9	75.4	61.7	49.2	28.7	48.2	2.19	2.14	6.4	0.11
1977	26.9	44.2	86.7	56.9	50.8	78.5	75.1	44.3	24.4	51.7	2.69	4.70	4.3	0.08
1978	36.3	26.1	68.8	67.8	50.5	63.2	76.7	45.5	30.5	49.7	1.87	3.73	6.2	0.14
1979	40.1	29.6	44.8	49.4	39.2	39.6	80.9	51.5	21.8	42.4	0.66	5.59	3.6	0.16
1980	51.2	61.7	81.2	98.7	72.2	63.5	82.1	68.9	37.2	67.0	2.05	8.81	4.2	0.15
1981	66.4	53.5	83.6	92.9	57.8	72.9	97.1	57.8	35.2	65.9	2.60	8.08	7.8	0.31
1982	26.7	27.9	38.9	55.5	23.1	20.9	41.6	47.7	19.3	32.3	0.79	4.21	6.4	0.10
1983	9.6	12.8	21.7	21.6	13.3	25.3	42.6	51.1	27.5	23.7	1.44	2.65	6.8	0.05
1984	8.8	11.1	19.2	22.1	14.4	24.5	23.8	38.5	26.4	20.6	0.66	4.22	5.6	0.08
1985	21.6	28.0	36.4	40.0	32.7	26.0	59.2	72.6	42.0	38.9	1.37	9.75	7.4	0.07
1986	27.5	20.4	48.2	31.2	24.8	29.0	49.7	65.2	27.2	34.8	1.42	9.62	7.7	0.12
1987	40.2	36.8	59.7	61.4	41.1	33.2	58.5	64.2	39.0	46.8	2.70	14.93	8.6	0.12
1988	33.6	35.0	45.1	60.8	29.6	26.0	45.7	49.8	29.8	38.1	1.96	19.00	4.5	0.17
1989	25.3	36.5	52.1	69.9	57.1	35.3	38.6	40.0	39.0	43.2	1.91	17.27	5.4	0.22
1990	34.3	49.4	63.9	57.9	44.3	24.7	44.5	31.7	27.3	41.2	1.48	8.75	9.2	0.19
1991	37.3	45.3	48.8	77.6	41.6	33.3	61.2	49.4	41.6	46.8	1.34	4.59	5.5	0.07
1992	24.4	50.5	30.5	44.0	42.1	37.8	29.4	23.6	34.2	35.8	1.07	3.58	6.0	0.14
1993	15.8	21.4	15.2	55.2	23.8	25.0	34.3	24.0	28.1	25.9	0.96	0.85	5.5	0.03
1994	45.0	74.1	33.3	83.3	55.6	67.8	47.3	46.0	56.7	56.9	1.58	6.17	6.3	0.15
1995	26.0	63.2	37.6	44.7	54.3	54.3	43.7	27.8	43.2	44.6	1.37	2.47	7.0	0.06
1996	54.7	61.8	29.5	45.2	49.8	59.4	29.8	19.5	28.2	43.4	0.51	2.37	6.2	0.09
1997	46.1	62.0	41.2	37.3	54.7	47.4	31.7	28.8	41.3	44.8	0.77	5.10	4.9	0.10
1998	74.2	56.7	43.1	33.9	49.6	53.9	18.1	15.7	41.7	44.6	0.72	6.42	5.1	0.09
1999	42.7	33.6	21.6	19.5	37.9	36.0	17.5	12.9	27.0	29.1	0.57	2.83	5.9	0.06
2000	60.6	33.3	14.9	29.0	50.3	37.0	25.5	19.3	22.0	34.3	0.57	2.53	6.4	0.03
2001	22.4	16.0	6.2	8.4	22.0	19.0	12.0	7.3	4.6	13.9	0.29	1.90	3.8	0.05
2002	47.0	42.9	13.6	32.0	49.9	32.0	15.7	11.7	22.6	31.7	0.39	2.82	5.3	0.03
2003	81.2	67.3	20.7	36.1	61.2	35.6	29.3	21.8	28.2	44.9	0.89	2.76	8.8	0.03
2004	54.4	34.4	19.0	21.5	35.6	24.4	24.9	19.6	24.4	29.7	0.93	2.12	8.1	0.03
2005	63.5	42.3	25.3	32.0	49.9	25.9	28.9	12.6	23.5	35.1	0.69	2.79	6.2	0.02
2006	48.3	36.1	18.4	23.7	36.8	20.4	20.3	9.0	20.0	27.0	0.82	2.01	6.4	0.05
2007	41.3	35.0	20.1	26.0	36.2	25.0	12.8	5.6	19.8	25.8	0.81	1.62	4.3	0.02
2008	49.4	25.4	9.1	21.2	18.6	7.4	5.7	4.4	5.3	17.5	0.45	1.03	6.3	0.00
2009	35.5	16.6	2.6	23.5	19.1	9.3	10.0	4.8	10.1	15.4	0.72	1.17	5.0	0.01
2010	29.6	16.2	4.7	8.8	11.7	5.3	6.1	1.8	6.6	10.8	0.33	0.93	3.1	0.00
2011	11.1	7.3	2.4	5.5	10.2	5.9	6.3	2.9	4.7	6.6	0.22	1.15	2.2	0.02
2012	16.3	10.9	1.3	3.5	12.3	6.3	4.4	4.0	5.4	7.8	0.36	1.47	2.0	0.01
2013	12.3	9.0	2.7	5.4	7.9	3.8	2.8	4.9	6.3	6.5	0.40	0.88	5.2	0.01
Statistics:														
10 Year Avg.	36.2	23.3	10.5	17.1	23.8	13.4	12.2	7.0	12.6	18.2	0.57	1.52	4.9	0.02
Long-term Avg.	38.8	46.0	39.8	45.9	44.0	43.0	54.7	34.1	25.9	40.7	1.37	3.85	5.9	0.15
Percent Change from:														
10 Year Avg.	-66%	-62%	-75%	-68%	-67%	-72%	-77%	-29%	-50%	-64%	-30%	-42%	6%	-38%
Long-term Avg.	-68%	-81%	-93%	-88%	-82%	-91%	-95%	-86%	-76%	-84%	-71%	-77%	-13%	-93%

a Values do not match those in Table 1 because historical data is based on ALL routes completed, whereas values in Table 1 are calculated only between directly comparable routes.

Statewide Pheasant Trends

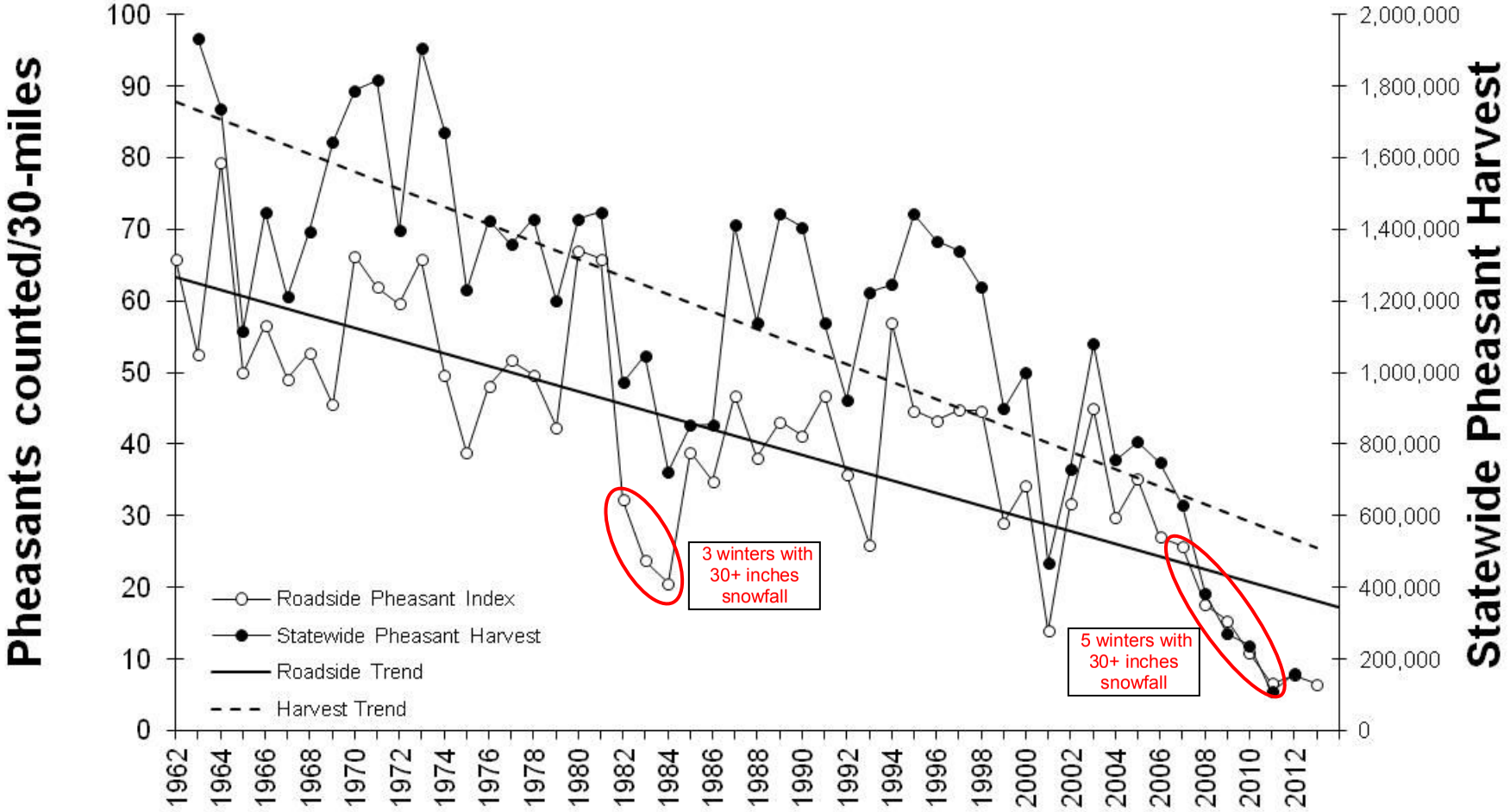


Figure 4. Mean number of pheasants counted on 30-mile August roadside survey routes, statewide, 1962-present compared to total statewide pheasant harvest.

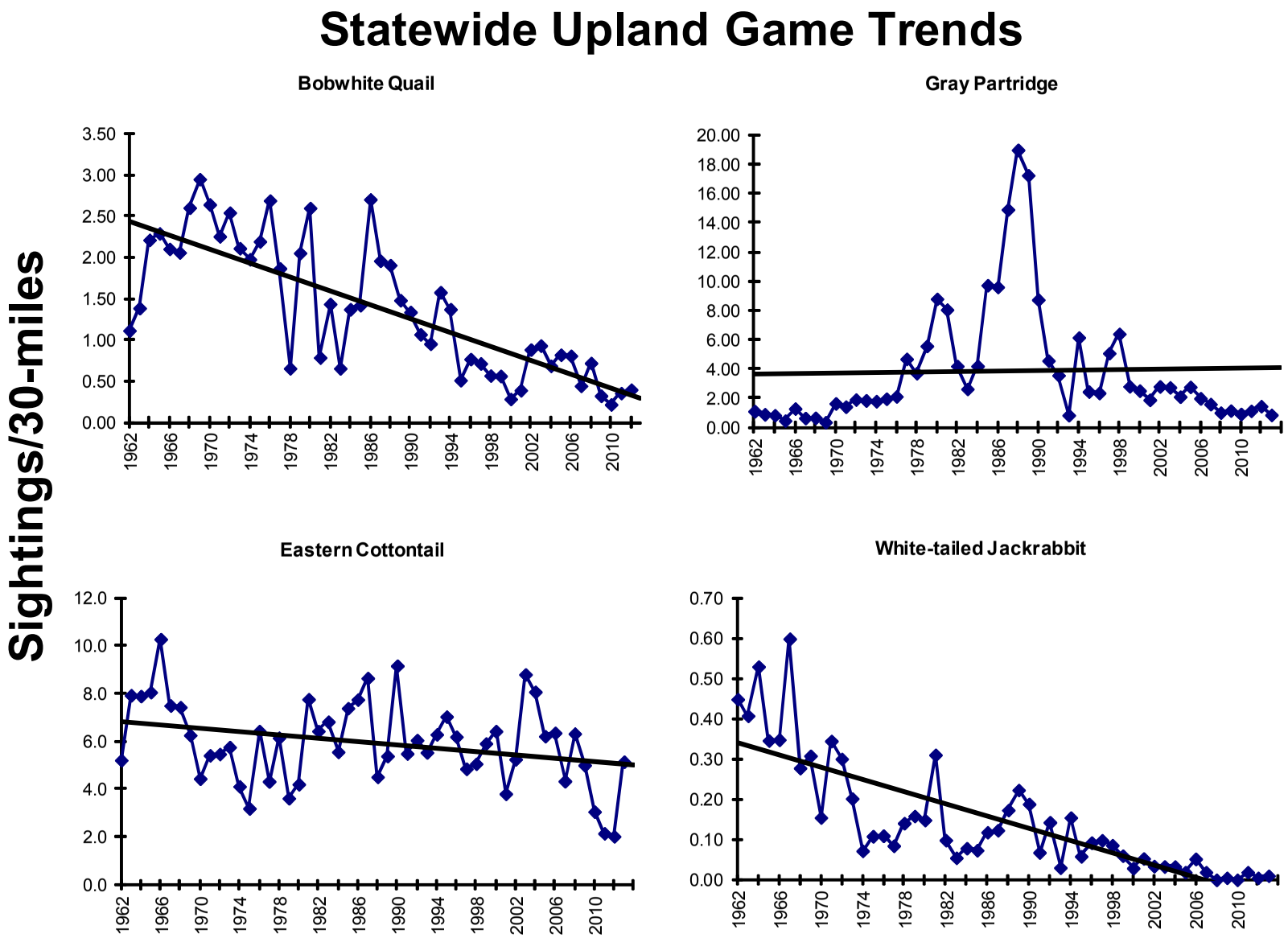


Figure 5. Mean number of quail, partridge, cottontails, and jackrabbits sighted per 30 mile route on the August roadside survey, statewide, 1962 to the present.

2013 August Roadside Survey

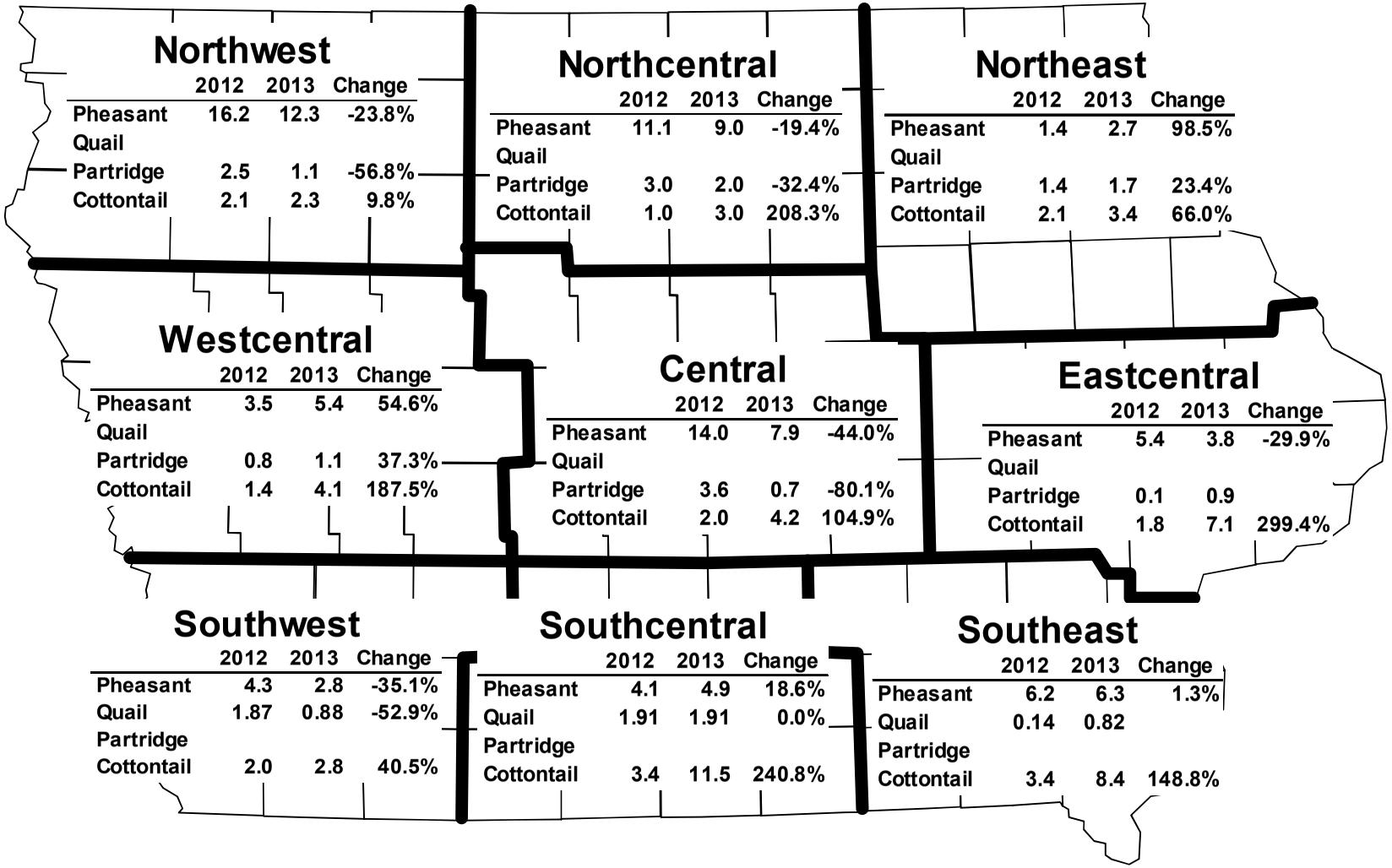
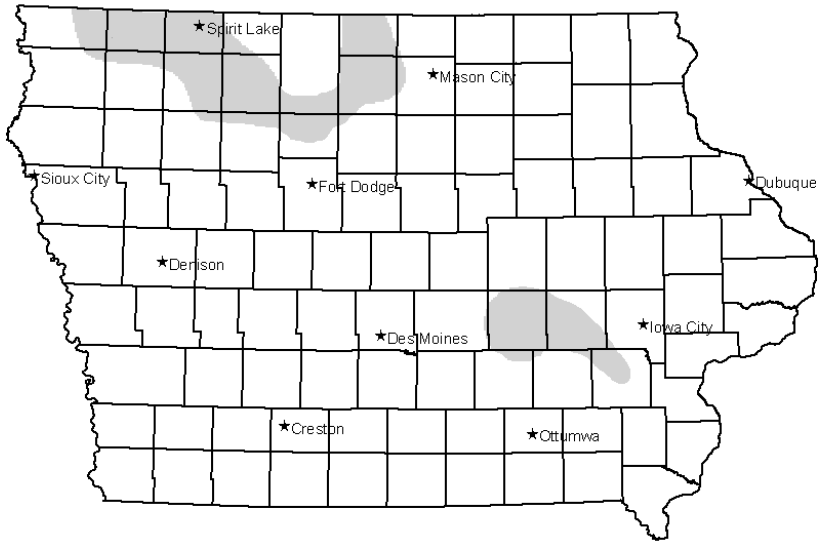


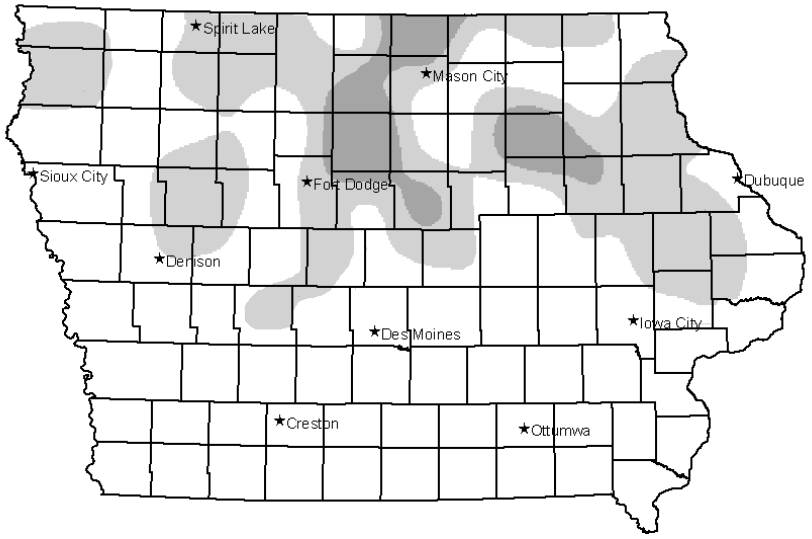
Figure 6. Numbers indicate the average number of animals counted on 30 mile routes in each region (e.g., the northwest region counted an average of 16.2 pheasants on 30-mile survey routes in 2012). Data from 197 of 216 total routes.

2013 GAME DISTRIBUTION

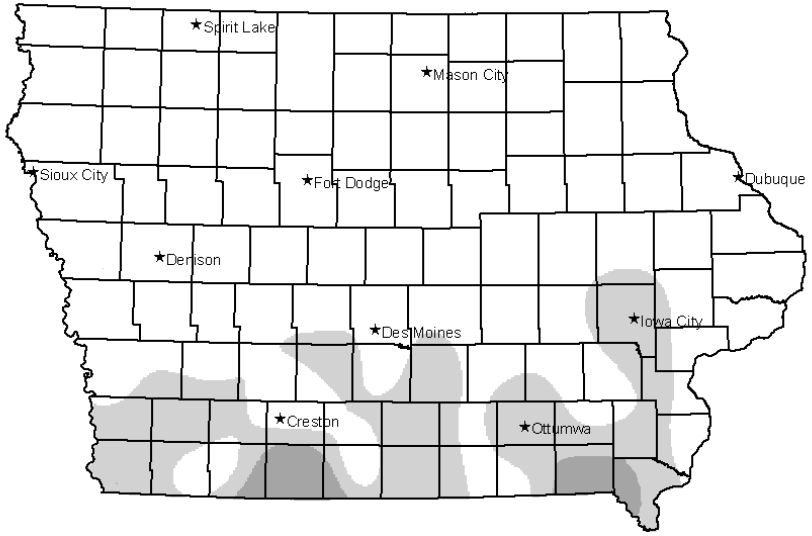
PHEASANT



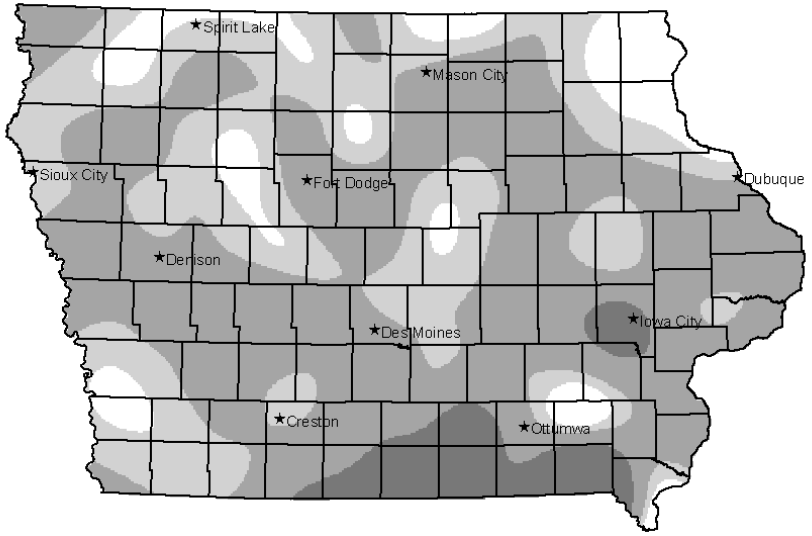
GRAY PARTRIDGE



QUAIL



COTTONTAIL



EXCELLENT **GOOD** **FAIR** **POOR**

Figure 7. Iowa small game distribution maps represent generalized game abundance. There can be areas of low game abundance in regions with "high" counts and vice versa.